

GCSE MATHS • GRADE 2

MATHS



MODEL ANSWERS

SIMPLIFYING ALGEBRA

SCORE

/185

PERCENTAGE

%

STEMUP

1 Simplify $q \times q \times q$

Three lots of q multiplied together

q^3

/ 1

2 Simplify $6p + 3p - 9p$

Collect the coefficients of p : $+6 +3 -9$

0

/ 1

3 Simplify $4h \times 3y$

$4 \times 3 = 12$, then multiply the letters

$12hy$

/ 1

4 Simplify $7d - 2d + 8d$

Collect the coefficients of d : $+7 -2 +8$

$13d$

/ 1

5 Simplify $2y + 9y - 7y$

Collect the coefficients of y : $+2 +9 -7$

$4y$

/ 1

6 Simplify $7f \times 8f$

$7 \times 8 = 56$ and $f \times f = f$ squared

$56f^2$

/ 1

7 Simplify $\frac{18r}{2}$
 $18 \div 2 = 9$

 $9r$ / 1

8 Simplify $2s + 9s - 5s$
Collect the coefficients of s : $+2 +9 -5$

 $6s$ / 1

9 Simplify $8n \times 2n$
 $8 \times 2 = 16$ and $n \times n = n$ squared

 $16n^2$ / 1

10 Simplify $\frac{40p}{5}$

$$40 \div 5 = 8$$

8p

/ 1

11 Simplify $4a + 5a - 8a$

Collect the coefficients of a: $+4 +5 -8$

a

/ 1

12 Simplify $6f \times 6f$

$6 \times 6 = 36$ and $f \times f = f$ squared

36f²

/ 1

13 Simplify $\frac{21x}{3}$

$$21 \div 3 = 7$$

7x

/ 1

14 Simplify $6f - 5f - 2f$

Collect the coefficients of f: +6 -5 -2

-f

/ 1

15 Expand $4(6k + 6)$

Multiply each term inside the bracket by 4

24k + 24

/ 1

16 Simplify $f^7 \times f^5$

Add the powers: $7 + 5 = 12$

f^{12}

/ 1

17 Simplify $6q - 2q - 5q$

Collect the coefficients of q : $+6 - 2 - 5$

$-q$

/ 1

18 Expand $4(t - 4)$

Multiply each term inside the bracket by 4

$4t - 16$

/ 1

19 Simplify $t^3 \times t^6$

Add the powers: $3 + 6 = 9$

t^9

/ 1

20 Simplify $6p - 2p - 3p$

Collect the coefficients of p : $+6 - 2 - 3$

p

/ 1

21 Expand $7(7r + 6)$

Multiply each term inside the bracket by 7

$49r + 42$

/ 1

22 Simplify $p^2 \times p^7$

Add the powers: $2 + 7 = 9$

p^9

/ 1

23 Simplify $5r + 3r + 4r$

Collect the coefficients of r: $+5 +3 +4$

$12r$

/ 1

24 Expand $9(2x - 8)$

Multiply each term inside the bracket by 9

$18x - 72$

/ 1

25 Simplify $z^4 \times z^2$

Add the powers: $4 + 2 = 6$

z^6

/ 1

26 Simplify $4q + 2q + 2q$

Collect the coefficients of q : $+4 +2 +2$

$8q$

/ 1

27 Simplify $8a + 6 + 3n - 4a$

Group like terms, then combine

$4a + 3n + 6$

/ 1

28 Simplify $s^4 \times s^4$

Add the powers: $4 + 4 = 8$

s^8

/ 1

29 Simplify $2n - 7n - 3n$

Collect the coefficients of n : $+2 - 7 - 3$

$-8n$

/ 1

30 Simplify $9s - 5d + 3s + 4$

Group like terms, then combine

$-5d + 12s + 4$

/ 1

31 Simplify $x^{10} \div x^4$

Subtract the powers: $10 - 4 = 6$

x^6

/ 1

32 Simplify $7t + 9t + 9t + 4t$

Collect the coefficients of t : $+7 + 9 + 9 + 4$

$29t$

/ 1

33 Simplify $9 + 7f + 6 + 7g$

Group like terms, then combine

$7f + 7g + 15$

/ 1

34 Simplify $n^{11} \div n^6$

Subtract the powers: $11 - 6 = 5$

n^5

/ 1

35 Simplify $4k + 4k - 8k + k$

Collect the coefficients of k : $+4 +4 -8 +1$

k

/ 1

36 Simplify $5e - 4e - 4e + 6$

Group like terms, then combine

$-3e + 6$

/ 1

37 Expand $-5(7a - 1)$

Multiply each term inside the bracket by -5

$$-35a + 5$$

/ 1

38 Simplify $\frac{63eg}{9g}$

Divide the numbers ($63 \div 9$) and cancel the g

$$7e$$

/ 1

39 Simplify $3e + c - 4e - 6$

Group like terms, then combine

$$c - e - 6$$

/ 1

40 Expand $-7(6q + 7)$

Multiply each term inside the bracket by -7

$$-42q - 49$$

/ 1

41 Simplify $5a + 8a^2 + 2a^2 + 4$

Group the a squared terms, the a terms and the numbers separately

$$10a^2 + 5a + 4$$

/ 2

42 Simplify $2n + 4n - 9 - 5n$

Group like terms, then combine

$$n - 9$$

/ 2

43 Expand $-2(2p + 3)$

Multiply each term inside the bracket by -2

$$-4p - 6$$

$$\boxed{2} / 2$$

44 Simplify $(m^3)^4$

Multiply the powers: $3 \times 4 = 12$

$$m^{12}$$

$$\boxed{2} / 2$$

45 Simplify $3h + 2h - 8p - 7h$

Group like terms, then combine

$$-2h - 8p$$

$$\boxed{2} / 2$$

46 Expand $-9(5s + 2)$

Multiply each term inside the bracket by -9

$$-45s - 18$$

/ 2

47 Simplify $(q^2)^3$

Multiply the powers: $2 \times 3 = 6$

$$q^6$$

/ 2

48 Simplify $4h + 8r - 2 - 8h$

Group like terms, then combine

$$-4h + 8r - 2$$

/ 2

49 Expand $-5(2e - 7)$

Multiply each term inside the bracket by -5

$$\text{.....} -10e + 35$$

/ 2

50 Simplify $(p^4)^3$

Multiply the powers: $4 \times 3 = 12$

$$\text{.....} p^{12}$$

/ 2

51 Simplify $8c - 4q + 4q - 2c$

Group like terms, then combine

$$\text{.....} 6c$$

/ 2

52 Expand $b(b + 2)$

Multiply each term inside the bracket by b

$$b^2 + 2b$$

/ 2

53 Simplify $z + 2z^2 + z + 8 + 7z^2$

Group the z squared terms, the z terms and the numbers separately

$$9z^2 + 2z + 8$$

/ 2

54 Simplify $2d - 5f - 2d - 9d$

Group like terms, then combine

$$-9d - 5f$$

/ 2

55 Expand $a(a - 8)$

Multiply each term inside the bracket by a

$$a^2 - 8a$$

/ 2

56 Simplify $(s^5)^3$

Multiply the powers: $5 \times 3 = 15$

$$s^{15}$$

/ 2

57 Simplify $6b - 8a + 8b - 3b$

Group like terms, then combine

$$-8a + 11b$$

/ 2

58 Simplify $7m + 6m + 6m^2 - m - 3m^2$

Group the m squared terms, the m terms and the numbers separately

$$3m^2 + 12m$$

$$\boxed{2} / 2$$

59 Simplify $(g^2)^2$

Multiply the powers: $2 \times 2 = 4$

$$g^4$$

$$\boxed{2} / 2$$

60 Simplify $4b + 3b + 6b - 9f - 5f$

Group like terms, then combine

$$13b - 14f$$

$$\boxed{2} / 2$$

61 Expand $c(c + 3)$

Multiply each term inside the bracket by c

$$c^2 + 3c$$

/ 2

62 Simplify $6m^3 \times 5m^4$

$6 \times 5 = 30$ and add the powers: $3 + 4 = 7$

$$30m^7$$

/ 2

63 Simplify $6x - 5x + 1 - 4 - q$

Group like terms, then combine

$$-q + x - 3$$

/ 2

64 Expand $3b(4b - 5)$

Multiply each term inside the bracket by $3b$

$$12b^2 - 15b$$

/ 2

65 Simplify $3z^3 \times 2z^5$

$3 \times 2 = 6$ and add the powers: $3 + 5 = 8$

$$6z^8$$

/ 2

66 Simplify $8 + 3n + 8n + 8b - 7n$

Group like terms, then combine

$$8b + 4n + 8$$

/ 2

67 Expand $3s(5s + 1)$

Multiply each term inside the bracket by 3s

$$15s^2 + 3s$$

/ 2

68 Simplify $2b^5 \times 2b^2$

$2 \times 2 = 4$ and add the powers: $5 + 2 = 7$

$$4b^7$$

/ 2

69 Simplify $x - 3q + 2q + x + 7$

Group like terms, then combine

$$-q + 2x + 7$$

/ 2

70 Expand $6b(4b + 6)$

Multiply each term inside the bracket by $6b$

$$24b^2 + 36b$$

/ 2

71 Simplify $4f^4 \times 2f^4$

$4 \times 2 = 8$ and add the powers: $4 + 4 = 8$

$$8f^8$$

/ 2

72 Simplify $1 + 3 - 3x + 9e + 7e$

Group like terms, then combine

$$16e - 3x + 4$$

/ 2

73 A triangle has sides $2b + 9$, $4b + 9$ and $3b + 4$.

Write an expression for the perimeter of the triangle in its simplest form.

Add the three sides and collect like terms

$$9b + 22$$

$$\boxed{2} / 2$$

74 Simplify $4k^5 \times 2k^2$

$4 \times 2 = 8$ and add the powers: $5 + 2 = 7$

$$8k^7$$

$$\boxed{2} / 2$$

75 Simplify $9 + 3b - 5b - 8 - 5b$

Group like terms, then combine

$$-7b + 1$$

$$\boxed{2} / 2$$

76 Factorise $7q + 28$

The highest common factor of the terms is 7

$$7(q + 4)$$

/ 3

77 Simplify $3z^5 \times 2z^3$

$3 \times 2 = 6$ and add the powers: $5 + 3 = 8$

$$6z^8$$

/ 3

78 A triangle has sides $r + 9$, $4r + 7$ and $4r + 2$.

Write an expression for the perimeter of the triangle in its simplest form.

Add the three sides and collect like terms

$$9r + 18$$

/ 3

79 Factorise $18c - 24$

The highest common factor of the terms is 6

$$6(3c - 4)$$

/ 3

80 Expand and simplify $5(3r + 5) + 4(r + 3)$

Expand each bracket, then collect like terms

$$19r + 37$$

/ 3

81 A triangle has sides $2r + 6$, $2r + 1$ and $3r - 2$.

Write an expression for the perimeter of the triangle in its simplest form.

Add the three sides and collect like terms

$$7r + 5$$

/ 3

82 Factorise $24c - 16$

The highest common factor of the terms is 8

$$8(3c - 2)$$

/ 3

83 Expand and simplify $3(4h + 2) + 2(h + 5)$

Expand each bracket, then collect like terms

$$14h + 16$$

/ 3

84 A triangle has sides $3g - 3$, $3g - 1$ and $2g + 8$.

Write an expression for the perimeter of the triangle in its simplest form.

Add the three sides and collect like terms

$$8g + 4$$

/ 3

85 Factorise $d^2 + 2d$

Both terms have a common factor of d

$$d(d + 2)$$

/ 3

86 Expand and simplify $7(2p - 5) + 4(6p - 2)$

Expand each bracket, then collect like terms

$$38p - 43$$

/ 3

87 A triangle has sides $q + 7$, $4q + 3$ and $3q - 5$.

Write an expression for the perimeter of the triangle in its simplest form.

Add the three sides and collect like terms

$$8q + 5$$

/ 3

88 A triangle has sides $2y + 2$, $4y - 2$ and $2y - 5$.

Write an expression for the perimeter of the triangle in its simplest form.

Add the three sides and collect like terms

$$8y - 5$$

/ 3

89 Expand and simplify $2(5p - 4) + 3(3p + 3)$

Expand each bracket, then collect like terms

$$19p + 1$$

/ 3

90 Factorise $2t^2 + 10t$

The highest common factor is $2t$

$$2t(t + 5)$$

/ 3

- 91 A triangle has sides $y + 9$, $3y + 9$ and $2y + 9$.

Write an expression for the perimeter of the triangle in its simplest form.

Add the three sides and collect like terms

$$6y + 27$$

/ 3

- 92 Expand and simplify $4(p - 3) + 4(3p - 5)$

Expand each bracket, then collect like terms

$$16p - 32$$

/ 3

- 93 A triangle has sides $2t - 1$, $t - 1$ and $2t + 6$.

Write an expression for the perimeter of the triangle in its simplest form.

Add the three sides and collect like terms

$$5t + 4$$

/ 3

94 Expand and simplify $3(2s - 1) + 5(s - 4)$

Expand each bracket, then collect like terms

$$11s - 23$$

/ 3

95 Expand and simplify $2(6r - 3) + 3(6r - 2)$

Expand each bracket, then collect like terms

$$30r - 12$$

/ 3

96 Expand and simplify $6(4m + 6) + 7(5m - 4)$

Expand each bracket, then collect like terms

$$59m + 8$$

/ 3

97 Expand and simplify $7(5c + 3) + 6(4c - 6)$

Expand each bracket, then collect like terms

$$59c - 15$$

/ 3

98 Expand and simplify $4(5s - 6) - 2(2s - 1)$

Expand each bracket, then collect like terms

$$16s - 22$$

/ 3

99 Expand and simplify $3(t - 4) + 7(5t - 2)$

Expand each bracket, then collect like terms

$$38t - 26$$

/ 3

100 Expand and simplify $5(5f + 5) + 6(2f - 1)$

Expand each bracket, then collect like terms

$$37f + 19$$

3

 / 3